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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,722	03/29/2001	Martin R. Handforth	120-042	4607
34845 7590 03/21/2007 McGUINNESS & MANARAS LLP 125 NAGOG PARK ACTON, MA 01720			EXAMINER NORRIS, JEREMY C	
			ART UNIT	PAPER NUMBER
			2841	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/21/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/821,722

Applicant(s)

HANDFORTH ET AL.

Examiner

Jeremy C. Norris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-33 is/are pending in the application.
- 4a) Of the above claim(s) 7-11 and 14-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 12, 13 and 29-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 18 October 2006 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 5, 6, 12, 13, and 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,219,292 (Dickirson) in view of US 6,608,258 B1 (Kwong).

Dickirson discloses, referring primarily to figures 3-5, an interconnection device comprising: first and second outer layers (74, 75), each including substrate material; at least one inner layer (analogous to 42) disposed between said first and second outer layers, said inner layer including at least one conductive signal trace (analogous to 48) disposed on a rigid substrate material proximate to an edge of the interconnection device and being accessible for direct electrical connection with a corresponding exposed signal trace, wherein at least one conductive protrusion is formed on said conductive inner layer trace (col. 4, lines 15-30). Dickirson does not disclose and shielding of the signal trace. Kwong teaches shielding disposed around a signal trace (46), including a first shielding wall (43) on a layer below the trace, a second shielding wall (44) on a layer above the trace, and third and fourth shielding walls on either side of the trace, the first, second, third and fourth shielding walls (48) being connected such that uninterrupted shielding is provided for 360° around the trace [claim 1]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the 360° shielding taught by Kwong in the invention of Dickirson. The motivation for

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doing so would have been to reduce signal degradation due to crosstalk [claim 1].

Additionally, the modified invention of Dickirson teaches wherein said conductive inner layer trace extends outward from the edge of the interconnection device [claim 2], wherein at least a portion of said first outer layer is removed to provide access to said conductive inner layer trace [claim 3], wherein said protrusion is malleable (conductive epoxy, col. 4, lines 15-30) [claim 5], wherein said protrusion is resilient (solder, col. 4, lines 15-30) [claim 6], wherein said inner layer substrate material is organic (Dickirson col. 3, lines 25-30) [claim 13].

Similarly, Dickirson discloses, an interconnection device comprising: a printed circuit board having first and second outer layers (74 75), each including substrate material; at least one inner layer (analogous to 42) disposed between said first and second outer layers, said inner layer including at least one conductive signal trace (analogous to 48) disposed on substrate material proximate to an edge of the interconnection device and being accessible for direct electrical connection with a corresponding signal trace. Dickirson does not specifically state that the inner layer substrate material is a ceramic. However, the Examiner takes Official notice that ceramic is well known in the art to be employed as substrate material. Therefore, it would have been obvious to the ordinarily skilled artisan at the time of invention to use ceramic as the substrate material for the inner layer. The motivation for doing so would have been to use a rigid material suitable for high temperature environments.

Additionally, Dickirson does not disclose any shielding. Kwong teaches shielding disposed around a signal trace (46), including a first shielding wall (43) on a layer below

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the trace, a second shielding wall (44) on a layer above the trace, and third and fourth shielding walls (48) on either side of the trace, the first, second, third and fourth shielding walls being connected such that uninterrupted shielding is provided for 360° around the trace. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the 360° shielding taught by Kwong in the invention of Dickirson. The motivation for doing so would have been to reduce signal degradation due to crosstalk [claim 12], wherein said conductive inner layer trace extends outward from the edge of the interconnection device [claim 29], wherein at least a portion of said first outer layer is removed to provide access to said conductive inner layer trace [claim 30], wherein at least one conductive protrusion is formed on said conductive inner layer trace (col. 4, lines 20-25) [claim 31], wherein said protrusion is malleable (conductive epoxy) [claim 32], wherein said protrusion is resilient (solder) [claim 33]..

Response to Arguments

Applicant's arguments with respect to claim 1-3, 5, 6, 12, 13, and 29-33 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 571-272-1932. The examiner can normally be reached on Monday - Friday, 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jeremy C. Norris
Patent Examiner - Technology
Center 2800
Art Unit 2841

JCSN